

Rectal gonorrhoea in male homosexuals

Presentation and therapy

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SUMMARY In a review of rectal gonorrhoea 73 episodes were studied in 65 homosexual men. The presenting signs and symptoms were carefully noted. Treatment with a single injection of spectinomycin hydrochloride 2 g resulted in a cure rate of 94.5%. The relatively high treatment failure rate associated with rectal gonorrhoea may possibly be due to microbial mechanisms.

Introduction

The continuing high prevalence of venereal and, to a lesser extent, other sexually transmissible diseases in the male homosexual community emphasises the need to review the clinical presentation, microbiology, and treatment of rectal gonorrhoea regularly. The department of genitourinary medicine at the Charing Cross Hospital, London, is attended by an exceptionally large proportion of homosexual patients.

Of 15 236 cases of male gonorrhoea diagnosed during the years 1962-71, 3430 (22.5%) were homosexually acquired and comprised 1867 (54.4%) rectal and 1563 (45.6%) urethral infections. Since 1968 the proportion of homosexual cases has fluctuated between 26% and 31% of the gonococcal infections diagnosed in men each year.¹ Of the 1867 patients with rectal infections 988 (53%) had no symptoms whatsoever and attended either for routine examination or because their sexual contacts had so advised.

The commonest complaints were a slight irritation (in 839, 45%) and a mucoid discharge (in 762, 40.8%); 150 (8%) men complained of an acute yellowish-green discharge and 27 (1.4%) of a blood-stained discharge, but only eight (less than 1%) passed actual blood. Several patients, however, complained vaguely of constipation, a proportion of these having slight discomfort on defecation. Four patients had acute tenesmus and two a severe continuous pain which ceased on the overt development of perianal herpes simplex. Three patients, otherwise completely symptom free, developed acute

retention of urine. A single catheterisation relieved the symptom in one of these patients but hospital admission was required for the other two. None had a stricture or any urethral infection.

Since treatment of these cases with the usual forms of therapy had a relatively high failure rate (10-27%) we decided to evaluate the treatment of male homosexually acquired rectal gonorrhoea with spectinomycin hydrochloride.

Patients and methods

DIAGNOSIS

Seventy-three episodes of rectal gonorrhoea occurring in 65 homosexual men over a period of 18 months from 1 February 1976 were treated. All patients were examined with a proctoscope and specimens were taken for microscopy and culture. The diagnosis was confirmed by the finding of Gram-negative intracellular diplococci on the smear and by the isolation and identification of *Neisseria gonorrhoeae* as described.²

TREATMENT

Each patient was treated with spectinomycin hydrochloride 2 g by intramuscular injection and instructed to avoid further sexual contact and to attend for follow-up examination at weekly intervals for three weeks. At each subsequent visit, repeat specimens obtained by proctoscopy were examined and all side effects relating to therapy recorded.

DETERMINATION OF MICs

Rectal isolates of *N. gonorrhoeae* were collected throughout the study and preserved by snap-freezing in liquid nitrogen.³ On completion of the study the cultures were revived and the minimum inhibitory concentrations (MICs) of spectinomycin hydrochloride determined by the agar dilution technique.⁴

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Results

All 65 patients were Caucasian, of whom 47 were of British origin. Their ages ranged from 18 to 67 years (mean 30.3 years). None was married. The presenting symptoms and laboratory results are shown in table I. Fifteen of the asymptomatic patients attended as a result of contact action and 10 were self-referred. Thirty-eight (58.5%) patients had had previous rectal gonorrhoea. Five patients indicated hypersensitivity to penicillin, one to streptomycin, and one to aspirin.

TREATMENT

Of the 73 separate episodes of rectal gonorrhoea treated, five cases were excluded from the analysis. Two patients received penicillin on subsequent diagnosis of latent syphilis, one developed an ischio-rectal abscess requiring further treatment, one had had an ureteric diversion operation, and one developed non-specific proctitis that was treated with oxytetracycline. Fifty-six (82.4%) of the remaining 68 patients attended for one or more follow-up visits (table II).

Of those who had attended for one or more follow-up visits, three failed to be cured with spectinomycin hydrochloride. The MICs of spectinomycin hydrochloride for the preserved strains of *N gonorrhoeae* were 20 mg/l or less (mode 10 mg/l).

Discussion

Since many patients with rectal gonorrhoea are asymptomatic and unreliable in attending for follow-up, it is important for first-line treatment to be highly effective. This is supported by the recent appearance of β -lactamase-producing strains of *N gonorrhoeae* in Britain.⁵

TABLE I Presenting symptoms of 73 episodes of male rectal gonorrhoea together with the number of patients having positive results to rectal smears cultures or both

Symptoms	No	%
Asymptomatic	25	34.3
Rectal discharge	23	31.5
Pruritus or slight soreness	10	13.7
Low back pain	2	2.7
Blood in stool	1	1.4
Anal warts	2	2.7
Urethral discharge	2	2.7
Prolapsed haemorrhoid	1	1.4
Not recorded	7	9.6
Total	73	100.0
With positive results:		
Rectal smear	40	54.8
Rectal culture	53	72.6
Smear and culture	20	27.4

TABLE II Outcome of treatment in 68 cases

Results of treatment	No (%) of patients at follow-up visits		
	1	2	3
Assessable	56 (82.4)	35 (51.5)	16 (23.5)
Negative result to rectal smears and cultures	54 (96.4)	33 (94.3)	16* (100.0)
Failure	2 (3.6)	1 (2.9)	0
Reinfection (rectal)	0	1 (2.9)	0
Default	12 (17.6)	33 (48.5)	52 (76.5)

* One patient with a rectal infection apparently cured had acquired a fresh urethral infection

Penicillin has been less effective in treating rectal than urethral gonorrhoea in men. Fluker and Hewitt⁶ reported a failure rate of 26 (27%) of 96 cases treated with intramuscular procaine penicillin (1.8 megaunits) in London, while out of 192 cases Onyeabo (personal communication, 1970) observed 18 (10.5%) failures using 3.6 megaunits of the same antibiotic supplemented with oral ampicillin 2 g and probenecid 1 g. Using intramuscular kanamycin (2 g), Fluker and Hewitt⁶ found 14 (15.5%) failures among 90 cases followed in London. With cotrimoxazole in doses ranging from 16 to 20 tablets for between two and five days, Lawrence *et al*⁷ reported one failure out of 15 cases, and Waugh,⁸ using two tablets twice a day for seven days, reported eight (12.6%) failures out of 66 cases. There have been no reports on the effectiveness of spectinomycin hydrochloride in treating rectal gonorrhoea in male homosexuals.

Rectal gonorrhoea associated with urogenital gonorrhoea in women is common in the USA⁹ and elsewhere. Duncan *et al*,¹⁰ also in the USA, reported that spectinomycin hydrochloride in either a 2-g or 4-g dose gave a high cure rate (96%) in women with urogenital gonorrhoea, of whom 42% had additional positive rectal culture results. No significant differences have been found between the 2-g and 4-g doses of spectinomycin hydrochloride in treating urethral gonorrhoea.¹¹⁻¹³ The United States Center for Disease Control¹⁴ recommends the smaller dose. Morton,¹⁵ however, suggests that a single intramuscular dose of 4 g might delay the development of resistance, although Karney *et al*¹⁶ found no evidence of this in 2187 cases of gonorrhoea in both sexes.

The distribution of MICs appeared to be similar to that obtained by Poster and Wood¹⁷ for heterosexual patients and supports the finding of Platt¹⁸ that gonococcal isolates from homosexuals are no more resistant than isolates from heterosexual patients.

In view of these findings, the discrepancy in treatment failure rates between cases of rectal and urethral gonorrhoea appears anomalous. In cases where the clinical history excludes reinfection and the

dosage is sufficiently high to achieve adequate cell concentrations in vivo, bacterial interference is a putative cause. The production of antibiotic-inactivating enzymes (for example, β -lactamases) by the rectal commensals may reduce the effective concentration in situ. This mechanism seems improbable in the case of spectinomycin since enzymes active against the aminoglycosides are not liberated but remain in close association with the cytoplasmic membrane of the producer organisms.¹⁹ The survival of gonococci in the presence of antibiotics is a function not only of the intrinsic sensitivity of the organisms but also of their physiological state,²⁰ and therefore other interactions between gonococci and the commensal flora could influence the outcome of treatment. These interactions may reduce the gonococcal growth rate, either by competition for nutrients or by antagonism, to below a critical level required for antibiotic activity.²¹ Thus an antimicrobial agent active against both the gonococcus and a hypothetical antagonist would result in a low level of treatment failure. In this context it is interesting to note the finding of Phillips²² that *Bacteroides fragilis* is sensitive to spectinomycin. Laboratory studies of the antimicrobial susceptibility of gonococci in mixed culture should clarify the mechanism of treatment failure in cases where the organism appears to be sensitive in vitro.

In conclusion, this study suggests that a single dose (2 g) of spectinomycin hydrochloride is an acceptable first-line treatment for rectal gonorrhoea in men, giving a cure rate of 94.5%. Caution has been advised, however, in case increased use leads to plasmid transfer²³ or transposition¹⁹ from the enteric flora.

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